1. A method of securing a substrate having opposite first and second surfaces, comprising:

contacting a first surface of a substrate with a substrate-engaging surface;

moving a plurality of latch bodies from an unlatched position toward a latched position in which each of the plurality of latch bodies has a contacting relationship with a second surface of the substrate;

separating each of the plurality of latch bodies from the second surface during movement from the unlatched position to the latched position until the plurality of latch bodies are substantially in the latched position; and

applying a clamping force with each of the plurality of latch bodies to the second surface in the latched position effective to secure the substrate against the substrate-engaging surface.

2. The method of claim 1 wherein each of the plurality of latch bodies includes a clamping member that applies the clamping force to the second surface in the latched position, and separating each of the plurality of latch bodies from the second surface further comprises:

reducing a separation distance between the clamping member of each of the plurality of latch members and the second surface during movement from the unlatched position to the latched position.

3. The method of claim 2 wherein reducing the separation distance further comprises:

contacting a supporting member of each of the plurality of latch bodies with a corresponding one of a plurality of ramps inclined so that movement of each of the plurality of latch bodies from the unlatched position to the latched position reduces the separation distance.

4. The method of claim 3 wherein contacting a supporting member further comprises:

maintaining a rolling engagement between a rolling element of the supporting member with a corresponding one of a plurality of inclined ramps.

5. The method of claim 4 wherein the substrate-engaging surface is centered about a central axis and each of the plurality of inclined ramps ascends outwardly relative to the central axis, and separating the clamping member of each of the plurality of latch bodies further comprises:

elevating the clamping member of each of the plurality of latch bodies above the second surface as the rolling element descends along the corresponding one of the plurality of inclined ramps.

6. The method of claim 1 wherein moving each of the plurality of latch bodies further comprises:

rotating each of the plurality of latch bodies through a pivot arc.

7. A method of securing a substrate having opposite first and second surfaces, comprising:

providing a substrate holder including an opening centered about a central axis and a clamp ring with a substrate-engaging surface surrounding the opening, the opening dimensioned to receive the substrate therein and the substrate-engaging surface configured to support a first surface of the substrate;

providing a plurality of latch assemblies mounted to the substrate holder about the opening and a plurality of inclined ramps each sloped ascending outwardly with respect to the central axis, each latch assembly including a latch body with a clamping roller assembly and a supporting roller assembly;

positioning the first surface of the substrate against the substrate-engaging surface of the substrate holder; and

moving each of the latch bodies from an unlatched position to a latched position in which the clamping roller assembly of each of the plurality of latch assemblies applies a clamping force to the second surface of the substrate, the clamping force effective to capture the substrate between the latch bodies and the substrate-engaging surface, the moving step including maintaining an engagement between the supporting roller assembly of each of the latch bodies and one of the plurality of inclined ramps such that each corresponding clamping roller assembly is separated by a gap from the substrate surface until the latch body is substantially in the latched position.

8. The method of claim 7 wherein the clamping roller assembly rollingly engages the second surface of the substrate over an arc length of less than about three angular degrees of the pivot arc near the latched position.

9. The method of claim 8 wherein the clamping roller assembly rollingly engages the second surface of the substrate over an arc length of less than about one angular degree of the pivot arc near the latched position.

10. The method of claim 7 further comprising:

moving each of the latch bodies from the latched position to the unlatched position so as to remove the clamping force applied to the second surface of the substrate.

11. The method of claim 10 further comprising:

maintaining a rolling engagement between the supporting roller assembly and the corresponding one of the plurality of inclined ramps as such that the clamping roller assembly ascends away from the substrate surface as the latch body moves toward the latched position.

12. The method of claim 7 wherein moving each of the latch bodies further comprises:

rotating the latch bodies through a pivot arc from the latched position to the unlatched position.

13. A method of providing a retrofit kit for a substrate holder of a processing machine, comprising:

providing a plurality of mounting posts each mountable to the substrate holder and including an inclined surface;

providing a plurality of latch bodies each capable of being rotatably carried on a corresponding one of the plurality of mounting posts, each of the plurality of latch bodies movable between a latched position and an unlatched position when mounted to the corresponding one of the plurality of mounting posts;

providing a plurality of clamping roller assemblies each mountable to a corresponding one of the plurality of latch bodies, each of the plurality of clamping roller assemblies including a resiliently-biased first rolling element adapted to apply a clamping force to a substrate when the corresponding one of the plurality of latch bodies is in the latched position;

providing a plurality of supporting roller assemblies each mountable to a corresponding one of the plurality of latch bodies, each of the plurality of supporting roller assemblies including a resiliently-biased second rolling element that rollingly engages the inclined surface when the corresponding one of the plurality of latch bodies is mounted to a corresponding one of the plurality of mounting posts, wherein the rolling engagement between the second rolling element and the inclined surface separates the first rolling element from the second surface of the substrate in a non-contacting manner until the corresponding one of the plurality of latch bodies is substantially in the latched position, and

grouping the plurality of mounting posts, the plurality of latch bodies, the plurality of clamping roller assemblies and the plurality of supporting roller assemblies in a retrofit kit for a processing machine.

14. The method of claim 13 further comprising:

providing a clamp ring having a wafer-engaging surface against which a first surface of a substrate is clamped by the plurality of clamping roller assemblies when the plurality of mounting posts are mounted to the clamp ring and the clamp ring is installed in the substrate holder, and the plurality of latch bodies are mounted to the plurality of mounting posts and in the latched position.

15. A method of retrofitting a substrate holder of a processing machine, comprising:

removing existing latch assemblies from a substrate holder;

mounting a plurality of mounting posts to the substrate holder, each of the plurality of mounting posts including an inclined surface;

mounting a latch body rotatably on the mounting post;

installing a clamping member in the latch body, the clamping member including a resiliently-biased first rolling element capable of applying a clamping force to a substrate; and

installing a supporting member in the latch body, the supporting member including a resiliently-biased second rolling element that rollingly engages the inclined surface, the rolling engagement between the second rolling element and the inclined surface separating the first rolling element from the second surface of the substrate in a non-contacting manner until the latch body is substantially in the latched position.

16. The method of claim 15 further comprising:

mounting the mounting posts at the former locations of the existing latch assemblies.

17. The method of claim 15 further comprising:

adjusting the position of the clamping member relative to the latch body according to the thickness of a substrate to be held in the substrate holder for minimizing the distance over which the first rolling element contacts the substrate near a latched position.

18. The method of claim 15 further comprising:

adjusting the position of the supporting member relative to the latch body so that the second rolling element is rollingly engaged with the inclined surface as the latch body is moved between a latched position and an unlatched position.